

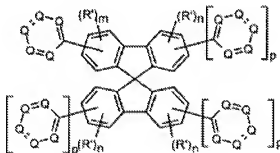
DETAILED ACTION

The examiner acknowledges the receipt of applicants' amended claims dated 12/30/2010.

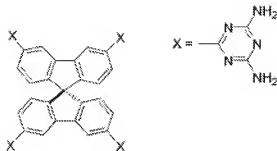
Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. **Claims 22 is rejected under 35 U.S.C. 102(b) as being anticipated by Wuest (J. Org. Chem. Vol. 69, pages 1762-1775).**
2. **Regarding Claim 22**, applicant claims the compound represent by Formula 2 (shown below):



Wuest discloses Formula J-1 (page 1765)



Formula J-1 reads on applicant's Formula 2 where a spirobifluorene core is substituted by four 1,3,5- triazine groups corresponding to applicants' Formula 1. Each triazine is substituted at two CR locations where R is N(R¹)₂ and R¹ is represented by hydrogen atoms.

Allowable Subject Matter

3. The following is a statement of reasons for the indication of allowable subject matter: Applicant claims an organic electroluminescent device containing a hole blocking layer composed of a 9,9'-spirobifluorene derivative or a 6,6- and/or 12,12-di- or a tetrasubstituted indenofluorene derivative or a tetraarylmethane derivative or a triptycene derivative substituted with a pyridazine or a pyrazine or a 1,3,5-triazine.
4. The prior art did not show the instant limitations. The closest prior appears to be Oshiyama (US 2003/0198831) in view of Lupo (US 5,840,217).

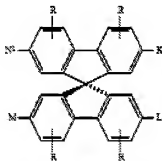
Oshiyama discloses an organic electroluminescent device (OLED) that contains a light emission layer (emission layer), a hole blocking layer, an anode and a cathode

(paragraph 59). The light emission layer contains a host material (matrix material) and a phosphorescent compound (dopant) (abstract). The hole blocking layer can be made of materials that include triazine derivatives (Q is 3) (paragraph 70). The hole blocking layer is located between the light emitting layer and the cathode (paragraph 61).

Oshiyama fails to mention triazine derivative which is a 9,9'-spirobifluorene derivative, a 6,6- and/or 12,12-di- or tetrasubstituted indenofluorene derivative, a tetraarylmethane derivative or a triptycene derivative.

Lupo discloses triazine functional spirobifluorene compounds used in an OLED (abstract). Lupo further discloses that the spiro compounds can be used as charge injection or charge transport for positive (holes) charges and negative (electrons) charges (column 24, lines 35-40).

Lupo discloses 9,9'-spirobifluorene compounds represented by Formula L-1

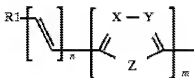


where the symbols and indices have the following meanings:

K, L, M, N are identical or different and are

L-1

Where M-N-L-K can be represented by formula L-1c (column 2)



and R1 = H, n = 0, m = 1, X = N, Y = N, Z is CH=N- which results in a 9,9' spirobifluorene triazine function compound. Formula L-1c is a 1,2,4-triazine. While the above 1,2,4-triazine formula is a positional isomer of a 1,3,5-triazine material applicant has presented data which shows that the 1,3,5-triazine function as a more effective hole blocking material due to a higher triplet energy level. There would appear to be no reason to modify the 1,2,4-triazine in order to produce a 1,3,5-triazine material.

5. Claims 1-4, 7-21
6. Applicant claims an electronic device containing the compound of claim 22. While Wuest shows the Formula 2 was known in the prior art as discussed above there appears to be no reason the use Formula J-1 in an electronic device or as a polymer or dendrimer.
7. Claims 26 and 28-30 allowed.

Claim Objections

8. Claims 24-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Wuest's Formula J-1 shows R as a NH₂ not the aromatic or the heteroaromatic groups claimed by applicant. . There appears to be no reason to substitute an aromatic or a heteroaromatic system for NH₂ in Formula J-1.

Wuest's Formula J-1 shows four triazine units attached to the spirobifluorene core. There appears to be no reason to reduce the triazine units by two to arrive at the instant limitations.

Response to Amendment

Applicants' arguments based on the previous rejections by Oshiyama and Lupo were persuasive with respect to the 1,2,4-triazine versus the 1,3,5-triazine. As a results, related claims based on Lupo are been found allowable.

As claim 22 is an independent claim not linked to an electronic device, the prior art showed Formula J-1 which reads on applicants' Formula 2.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREGORY CLARK whose telephone number is

(571)270-7087. The examiner can normally be reached on M-Th 7:00 AM to 5 PM
Alternating Fri 7:30 AM to 4 PM and Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 1786

GREGORY CLARK /GDC/
Examiner
Art Unit 1786